

Partial Business and Regulatory Impact Assessment

Title of Proposal

Loch Carron – Designation of a Marine Protected Area (MPA) and Introduction of a Marine Conservation Order (MCO) - Socio-Economic Analysis

Purpose and intended effect

Background

The Scottish Government is committed to a clean, healthy, safe, productive and biologically diverse marine and coastal environment that meets the long-term needs of people and nature. In order to meet this commitment our seas must be managed in a sustainable manner by balancing the competing demands on marine resources with appropriate conservation measures. Biological and geological diversity must be protected to ensure our future marine ecosystem is capable of providing the economic and social benefits it yields today.

Marine Protected Areas (MPAs) in coastal waters are designated under the Marine (Scotland) Act 2010. The Loch Carron MPA was designated on an urgent basis in 2017, along with an urgent MCO. This action was taken following damage to a flame shell bed to enable recovery to take place. However both the urgent MPA and MCO are time limited to a maximum of two years, and will end in 2019.

Proposal

The Scottish Government proposes to make Loch Carron an MPA without time limitation from 2019. Having now assessed the location against the MPA selection guidelines it has been determined that it should have two protected features – flame shell beds and maerl beds.

Alongside this, the Scottish Government proposes to implement an MCO to further the conservation objectives of the MPA by regulating fishing activities. For other industries the relevant public authority must only give consent where it can be demonstrated that the activity will not hinder the achievement of the conservation objectives.

Protected features and conservation objectives – Loch Carron MPA

The Loch Carron MPA proposal is situated on the west coast of Scotland and is notable for biogenic reefs that occur in shallow water around its periphery. There are two broad conservation objectives for the creation of a Scottish network of MPAs: either to conserve features in their current state, or to afford them protection to enable recovery to a state in which they remain healthy and productive. For the proposed Loch Carron site the conservation objective for all features is to conserve and recover the damaged flame shell beds.

Feature	Conservation objective
Flame shell beds	Recover
Maerl beds	Conserve

Objective

The purpose of Nature Conservation MPAs is to safeguard nationally important species, habitats and geology across Scotland's marine environment. MPAs have been designed to complement existing site-based measures. The intention is to manage MPAs under the sustainable use principle.

The purpose of the MPA network is to safeguard important species, habitats and geology across Scotland's marine environment. Maintaining or improving biological diversity by having an ecologically coherent MPA network meets a range of obligations such as:

- the Marine (Scotland) Act 2010
- the Marine and Coastal Access Act 2009
- the Convention on Biological Diversity
- the World Summit on Sustainable Development
- the OSPAR convention
- the EU Marine Strategy Framework, Wild Birds, and Habitats Directive

Designation of MPAs is based primarily on scientific evidence, and search features were used to underpin the selection of MPA locations. The Loch Carron site has been identified for designation as an MPA due to the confirmed presence of biodiversity features detailed above. The proposed management measures are also based on this scientific evidence base combined with fishing activity data.

Evidence in this BRIA is drawn from the work of statutory nature conservation body SNH and consultants ABPmer and effec, who have provided evidence on socioeconomic impacts of management measures for previous MPA designations and management measures. This has been updated as required. It brings together the science-led arguments for management and the projected potential social and economic consequences of such action. This BRIA examines the socio-economic effects of designating the Loch Carron MPA and introducing management measures. The appraisal period for assessing the socioeconomic impacts covers the 20 year period from 2019 to 2038, although benefits will be delivered for longer if effective management measures remain in force. As with any socio-economic assessment related to environmental designations, the findings should be considered as estimates. Where uncertainty exists, such as for fisheries, are deliberately presented as worst-case scenarios to build in necessary caution.

Rationale for Government intervention

Scotland's marine environment provides: food; energy sources (wind, wave and tidal power, minerals and fossil fuels); routes and harbours for shipping; tourism and recreational opportunities; and sites of cultural and historical interest. Scotland's seas contain important distinctive habitats and support a diverse range of species that require protection in order to be conserved or for recovery to be facilitated. There are a number of market failures evident in the ways in which the marine environment is utilised. These relate to:

- *Public goods:* A number of the benefits of the marine environment such as the non-use value of biological diversity have 'public good' characteristics (no-one can be excluded from enjoying the benefits (non-excludability), and enjoyment of the benefits they provide by one person does not diminish the benefits that are available to others (non-rivalry)). These characteristics of the benefits from the marine environment mean that private individuals do not have an incentive to voluntarily ensure the continued flow of these goods, which can lead to their under-provision.
- *Negative and positive externalities:* externalities occur when actions of marine users affect other parties positively or negatively, but this is not reflected in market prices. In many cases, the market does not account fully for the value of benefits and costs of the activities of marine users. In the case of negative externalities (positive externalities) this can lead to more damage (less benefits) occurring from economic activity than would occur if the full cost (benefits) of economic activity was accounted for. For example, for marine harvestable goods that are traded, such as wild fish, market prices often do not reflect the potential damage caused to the environment by that exploitation.

Due to the competing demands placed upon Scotland's marine resources, market failures related to public goods provision and externalities will lead to insufficient protection of the marine environment if left to the market. This provides rationale for government to intervene to protect the marine environment.

Consultation

To be completed after the consultation process.

Option 1: Do nothing

Option 1 is the 'Do nothing' option; this is the baseline scenario. Under this option, the urgent designation and management measures will remain in place for two years to 2019, after which they will end. There will be no management measures implemented, and use of mobile gear could resume, which threatens the conservation and recovery of the features identified above.

Option 2: Designate site as a Nature Conservation Marine Protected Area and Introduction of a Marine Conservation Order (MCO)

Under this option, Loch Carron would be designated an MPA and new management measures would be introduced in 2019 when the urgent designation ends. This would continue the conservation and recovery of the features identified above, and contribute to the wider Scottish, UK, and OSPAR marine protected area networks. The introduction of management measures at Loch Carron would ensure that commercial use of the marine environment in the area could not hinder the achievement of the conservation objectives, in particular enabling recovery of the flame shell bed and conserve maerl beds, which would contribute to improving the biological diversity in Scotland's seas.

Sectors and groups affected

The following sectors have been identified as having some activity (or possibly present in the future) within the Loch Carron MPA and are potentially affected by the designation and the proposed management measures:

- Aquaculture (Finfish)
- Commercial fisheries
- Recreational boating and tourism
- Public sector

While the above sectors are all potentially operational within the proposed MPA site, not all will be impacted by designation and management measures.

Activities occurring within the MPA which do not affect the protected features are outfall from sewage treatment works at Port Luinge, ports and harbours, commercial shipping, and sailing/boating areas. There are also some inactive finfish and shellfish aquaculture sites within the MPA.

Affected sectors may be impacted to a greater or lesser degree by designation and management measures depending on which scenario is pursued and which management option is preferred.

Benefits

Option 1: Do nothing

Under this option, the urgent Loch Carron MPA designation and MCO will end. Fishing activity using mobile gear could resume and other marine use activities that threaten the conservation objectives for the area and recovery of the flame shell beds would continue. The damaged flame shell beds would not have recovered in two years to 2019, and there would be risk to further damage and decline in status. Under the do nothing scenario, the benefits sought and long term objectives for Loch Carron would not be delivered.

Option 2: Designate site as a Nature Conservation Marine Protected Area (MPA) and implement a Marine Conservation Order (MCO)

MPA designation and introduction of an MCO and associated management measures will help to conserve the range of biodiversity in Loch Carron and for Scotland as a whole, and will contribute to establishing an ecologically coherent network of marine protected areas. In the absence of management measures, there would be areas of Scotland's marine environment that would continue to be unprotected. This would be contrary to the legal duty to protect designated marine protected areas.

Appropriate management measures will reduce the risk that the extent, population, structure, natural environmental quality and processes of features protected will decrease or degrade over time. The risk that the features will be adversely affected by human activities is greater if not protected by management measures. In addition, beyond a certain point of degradation, changes to ecosystems may become irreversible, resulting in a significant societal cost. Avoiding such a reduction in ecosystem services is a key benefit of introducing management measures in Loch Carron.

Contribution to an Ecologically Coherent MPA network

Scotland's seas support a huge diversity of marine life and habitats, with around 6,500 species of plants and animals, with plenty more to be found in the undiscovered deeps of the north and west of Scotland. Our seas account for 61% of UK waters and remain at the forefront of our food and energy needs, through fishing, aquaculture, oil and gas, and new industries such as renewables, as well as recreation activities and ecotourism. It is likely that an MPA network will demonstrate beneficial effects greater than the sum of the benefits from the individual areas.

Ecosystem Services and Benefits

Ecosystems are very complex, and it is thought that the more complex an ecosystem is the more resilient it is to change. Therefore, if it is damaged or if a species or habitat is removed from that ecosystem, the chances of survival for those services reduce as the ecosystem becomes weaker. However, by conserving or allowing the species and habitats that make up that ecosystem to recover, we can be more confident of the continuation of the long-term benefits the marine environment provides.

Non-use value of the natural environment is the benefit people get simply from being aware of a diverse and sustainable marine environment even if they do not themselves 'use it'. We take for granted many of the things we read about or watch, such as bright colourful fish, reefs and strange shaped deep sea curiosities, to lose them would be a loss to future generations that will not be able to experience them. Due to the scientific uncertainty involved it is challenging to put a true value on this, but the high quality experience and increasing knowledge of Scotland's seas can be better preserved through measures such as MPAs. It is expected that non-use value will be attained as a result of designation both from the knowledge that the features are receiving adequate protection along with the wider conservation objectives that designation supports.

In the case of Loch Carron, it is estimated that effective management of protected features may provide wider benefits over and above these non-use values society places on a healthy and productive marine environment. In particular the measures are likely to support scallop stocks that depend on maerl beds and flame shell beds as nursery habitats. Furthermore, recent research has highlighted the importance of maerl beds and other calciferous habitats, such as flame shell beds, as significant carbon capture and storage resources, and healthy populations of these habitats have the potential to contribute to mitigating climate change and providing opportunities for further research.

Annex A summarises the ecosystem benefits that can be derived from designation and effective management of the Loch Carron MPA. This includes protected features of the MPA and also other habitats and species known to be present and associated with flame shell beds and maerl beds.

While it may not be possible with current levels of research to monetise benefits with a satisfactory degree of rigour, it is clear that many of the benefits relate to aspects of our lives that we take for granted and for which it is good practice and common sense to maintain through protection measures. These benefits include use values, such as recreational use of the marine environment, as well as non-use values, such as the value that people place on simply knowing that something exists, even if they will never see it or use it.

Flame shell beds

Flame shell nests, created from byssus threads woven around seaweed, maerl or shells, form intricate tunnels and burrows which can coalesce into a deep spongy carpet. The loose structure allows both animals and plants to attach or shelter in it or on it, often so abundantly that the flame shell carpet itself is hidden. Seaweeds, featherstars, sponges and hydroids can attach to the surface of the bed, in turn hosting whole communities of their own, and dogfish are often found resting on the carpet. Maerl and horse mussels are often found associated with the beds. 19 species of seaweed and 265 animal species were reported from only six flame shell nests from one site in Loch Fyne. Compared to the usually mixed muddy gravels on which flame shell beds grow, the beds represent a considerable increase in biomass, primary production, gamete supply and also sediment stabilisation.

Flame shells have also proved to show considerable public value in terms of aesthetic and cultural benefits.

Maerl beds

The loosely interlocking structures formed by maerl nodules and twigs create a wide range of habitats for the development of diverse plant and animal communities on or within the bed. Seaweeds, featherstars, sponges and hydroids can attach to the surface of the maerl, in turn hosting whole communities of their own. The algal films that are often found around maerl can be grazed, as can the maerl itself by small molluscs. Over 500 animal species and 150 seaweed species have been found living on or in maerl beds, and this represents a considerable increase in biomass, primary production and gamete supply compared to the soft sediments on which maerl beds are formed. Maerl beds also provide shelter and habitat for commercially valuable species, such as juvenile cod, razor shells and king scallops, and act as a nursery ground for queen scallops. It has been shown that pristine maerl beds fulfil nursery ground prerequisites more effectively than dead maerl, or the surrounding sediments.

As maerl beds can extend down to 60cm into the sediment, the maerl can have both an important stabilisation role as well as a role in both nutrient cycling and also long-term carbon sequestration. It is likely that each bed represents a stock of carbon that has been slowly building up since the end of the last ice age.

Tourism Benefits

Coastal areas are well represented when considering the locations of various tourist related sites within Scotland with a range of site types present in all regions including the West. Where impacts to recreational boating or water sports have been identified for the site, there could also be consequential impacts on tourism. However, tourism may also benefit from the designation of the MPA directly and indirectly as a result of benefits to water sports activities such as recreational angling.

Costs

Option 1: Do nothing

This option is not expected to incur any additional costs to the sectors and groups outlined above. However, it should be noted that the societal cost of not designating Loch Carron an MPA could be both large and irreversible. The absence of management measures to conserve the identified features may produce future economic and social costs in terms of increased marine habitat and biodiversity degradation. The option to not designate holds the potential to undermine the overall ecological coherence of the Scottish MPA Network.

Option 2: Designate site as a Nature Conservation Marine Protected Area (MPA) and implement a Marine Conservation Order (MCO)

Costs have been evaluated based on the implementation of management measures. Where feasible costs have been quantified, where this has not been possible costs are presented qualitatively. All quantified costs have been discounted in line with HM Treasury guidance using a discount rate of 3.5%, to reflect societies preference for current over future consumption. All costs are presented in 2019 prices.

Aquaculture (Finfish)

There is one aquaculture site whose 1km buffer overlaps with the boundary of the proposed MPA. New planning applications for active salmon fish farms (cages and associated equipment e.g. moorings over or on the seabed), would need to be assessed against the requirements of section 83 of the Marine (Scotland) Act 2010

There is no public information on potential future development within the proposed MPA. In the absence of information on potential future developments, no site specific assessment has been possible. There may be costs incurred as a result of potential future development, with associated impacts on project delays on consenting and wider investment opportunities. However the MPA at 24km² represents only a small proportion of the coastal area of Scotland where such development could be undertaken

Commercial fisheries

Proposed management measures will further the conservation objectives of the protected features. The measures will apply across the entire footprint of the MPA.

Gear type	Management measures
All demersal mobile gears	Deployment of fishing gear is prohibited
All demersal static gears	No management
All pelagic gears	No management

The Loch Carron MPA proposal is located wholly within ICES rectangle 43E4. In the case of vessels with Vessel Monitoring Systems on board, activity within the MPA amounted to an average of 0.1% per years for trawls, 0 for dredges and 0 for static gear. This proportion has been used as a multiplier for vessels over 12m. For vessels under 12m the proportion of the ICES rectangle within the MPA has been used as a multiplier. Loch Carron MPA has an area of 24km² and the rectangle has a sea area of 645km² giving a 0.037 multiplier for vessels under 12m.

Estimated value of fisheries in ICES rectangle 43E4 and the Loch Carron MPA as derived from iFISH (average 2012-2016 in 2018 prices)		
Gear / sector	Estimated Rectangle Value	Estimated MPA value
Under 12m creels	2.183	0
Over 12m creels	0.024	0
Under 12m dredges	0.012	0.0005
Over 12m dredges	0.165	0
Under 12m trawls	0.135	0.005
Over 12m trawls	0.744	0.0007

Economic Costs of designation and management of Loch Carron MPA		
	Lower Estimate	Upper Estimate
Assumptions for cost impacts	No designation and no management measures	Prohibition of mobile bottom-contacting fishing gears(trawls, seines, beam trawls and all forms of mechanical and suction dredges) in MPA
Description of one-off costs	None.	None.
Description of recurring costs	None.	Loss of bottom contacting mobile fishing value (annual, in 2018 prices, £millions) 0.006
Description of non-quantified costs	None	Displacement effects, including conflict with other fishing vessels, environmental impacts in targeting new areas, longer steaming times and increased fuel costs, changes in costs and earnings, gear development and adaptation costs, and additional quota costs.

Commercial fisheries costs are presented below in terms of Gross Value Added (GVA). GVA more accurately reflects the wider value of the sector to the local area and economy beyond the market value of the landed catch. Stating costs purely in terms of landed value would overstate the true economic cost of not fishing. Social costs are also presented in terms of the reduction in full-time equivalent (FTE) employment. It is also possible that fishing effort not continuing in the area could be transferred to other locations resulting in reduced loss of income to vessels currently operating in Loch Carron, but with potential for costs to areas to which effort is displaced. GVA estimates only include direct impacts – wider supply chain impacts have not been considered because the direct impacts are judged to be very small.

Initial landings values, used to derive the final costs, are averaged over a period from 2012 - 2016 in order to smooth year-on-year fluctuations.

Quantified Costs of designation and management of Loch Carron MPA (£Million)		
	Lower estimate	Upper estimate
Average annual change to GVA (2018 prices)	0.000	0.003
Present value of total change in GVA (2019–2038)	0.000	0.038
Direct reduction in Employment	0.0 jobs	<0.1 jobs

The estimates of costs are explicitly based upon conservative assumptions to ensure an appropriate degree of caution. For example:

- It is assumed that, where fishing activity is impacted upon, it ceases altogether as opposed to relocating elsewhere. In reality, some activity is likely to be displaced rather than lost entirely.
- They are not offset against any improvement in stocks that may occur over time as a result of the MPA designation.
- They do not factor in the possible opportunity for fishers to trade quota or effort to mitigate the direct impact.
- There is no financial value associated with the benefits derived by society from the ecosystem goods and services provided by flame shell beds and maerl beds

The results presented here represent a worst case scenario. In reality vessels are likely to react to any management measures in place in order to maintain profitability (i.e. by changing target species/gear type). Displacement could well negate some of the cost impacts stated above (i.e. by fishing elsewhere), but conversely could also add to them (i.e. the extra fuel cost potentially associated with fishing elsewhere). This uncertainty is the reasoning behind not attempting to quantify this cost impact. Other non-quantified costs include: potential conflict with other fishing vessels, environmental consequences of targeting new areas, longer steaming times and increased fuel costs, changes in costs and earnings, gear development and adaptation costs, and additional quota costs.

Recreational boating and tourism

New moorings within the MPA may require surveys to confirm the absence of flame shell beds and maerl beds in areas being considered for new moorings. However following a number of surveys in 2017 there is a significant evidence base of distribution of these habitats which can be readily used.

Public sector

The decision to designate Loch Carron as a Nature Conservation MPA and introduce an MCO would result in costs being incurred by the public sector in the following areas:

- Preparation of Statutory Instruments
- Development of voluntary measures
- Site monitoring
- Compliance and enforcement
- Promotion of public understanding
- Regulatory and advisory costs associated with licensing decisions

The majority of these costs will accrue at the national level and as such have not been disaggregated to individual site level. Only the preparation of Statutory Instruments along with regulatory and advisory costs associated with licensing decisions have been estimated at the site level.

Site-specific Public Sector Costs (£Million, 2019-2038)		
Scenario	Lower estimate	Upper estimate
Costs	£m	£m
Preparation of Statutory Instruments	0.000	0.005
Regulatory and advisory costs associated with licensing decisions	0.000	0.000
Compliance and enforcement	0.000	0.200
Site condition Surveys	0.000	0.200
Total Quantified Costs	0.000	0.405

Total Costs

Total quantified costs are presented in present value terms at 2019 prices. These relate to the designation of the MPA and the implementation of the MCO.

Commercial fisheries costs to Scottish vessels are presented in terms of GVA.

Total Present Value of Quantified Costs (£Million, 2019-2038)		
Scenario	Lower estimate	Upper estimate
Sector/Group	£m	£m
Commercial Fisheries	0.000	0.038
Public Sector	0.000	0.405
Total Present Value of Quantified Costs	0.000	0.000

Total Non-Quantified Costs		
Scenario	Lower	Upper
Sector/Group		
Aquaculture (Finfish)	None	Possible additional costs associated with potential future development. Costs of project delays during consenting; potential impact on investment opportunities.
Recreational boating and tourism	None	Possible additional costs associated with potential future development.
Commercial Fisheries	None	Displacement effects, including conflict with other fishing vessels, environmental impacts in targeting new areas, longer steaming times and increased fuel costs, changes in costs and earnings, gear development and adaptation costs, and additional quota costs.

Scottish Firms Impact Test

Many of the businesses affected may include some small and micro-sized firms. For the commercial fisheries sector the average number of fishers per Scottish vessel in 2013 was 2.5. Additional costs imposed by the introduction of fisheries management measures at the Loch Carron MPA have the potential to fall on small businesses.

Competition Assessment

The introduction of fisheries management measures at the Loch Carron MPA may lead to a competitive disadvantage for commercial fisheries activity operating within a given spatial area, potentially restricting the output capacity of this sector. However, given that as activity is likely to be displaced instead of lost, these impacts are negligible. It is not expected that the distribution of additional costs will be skewed towards smaller entrants relative to larger existing suppliers.

The introduction of management measures will not directly limit the number or range of suppliers in the aquaculture or recreational boating and tourism sectors, although additional assessment to support future planning applications could raise the costs for existing suppliers.

Competition Filter Questions

Will the proposal directly limit the number or range of suppliers? e.g. will it award exclusive rights to a supplier or create closed procurement or licensing programmes?

No. It is unlikely that the introduction of fisheries management measures will directly limit the number or range of suppliers.

Will the proposal indirectly limit the number or range of suppliers? e.g. will it raise costs to smaller entrants relative to larger existing suppliers?

Limited / No Impact. The introduction of fisheries management measures could affect the spatial location of commercial fisheries activity and may restrict the output capacity of this sector. However, restrictions on fishing locations may well be negated by displacement i.e. vessels fishing elsewhere. It is not expected that the distribution of additional costs will be skewed towards smaller entrants relative to larger existing suppliers.

Will the proposal limit the ability of suppliers to compete? e.g. will it reduce the channels suppliers can use or geographic area they can operate in?

No. The introduction of fisheries management measures will not directly affect firms' route to market or the geographical markets they can sell into.

Will the proposal reduce suppliers' incentives to compete vigorously? e.g. will it encourage or enable the exchange of information on prices, costs, sales or outputs between suppliers?

No. The introduction of fisheries management measures is not expected to reduce suppliers' incentives to compete vigorously.

Test run of business forms

It is not envisaged that the introduction of fisheries management measures will result in the creation of new forms for businesses to deal with, or result in amendments of existing forms.

Legal Aid Impact Test

It is not expected that the management measures will have any impact on the current level of use that an individual makes to access justice through legal aid or on the possible expenditure from the legal aid fund as any legal/authorisation decision impacted by the management measures will largely affect businesses rather than individuals.

Discussions with Scottish Government Legal colleagues are on-going but at this stage it is not envisaged that the introduction of fisheries management measures will have any legal aid impacts.

Enforcement, sanctions and monitoring

Marine Scotland has responsibility for compliance, monitoring and enforcement of the measures.

Implementation and delivery plan

The designation and management measures are proposed to be delivered by Statutory Instrument no later than 19 May 2019.

Post-implementation review

There is a 6 yearly marine protected area network reporting cycle and this includes MPAs like Loch Carron. The need for these measures will be reviewed in 2024 and every 6 years thereafter.

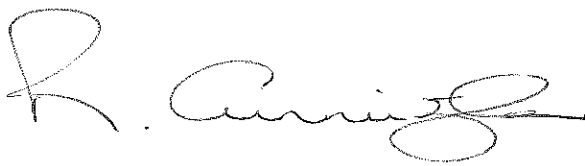
Summary

It is proposed that Loch Carron becomes an MPA under the Marine (Scotland) Act 2010. In addition an MCO is proposed to ensure that the MPA (if designated) is well-managed and that the conservation objectives for each protected features are furthered.

Declaration and publication

I have read the Business and Regulatory Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options. I am satisfied that business impact will be assessed with the support of businesses in Scotland.

Signed:

A handwritten signature in black ink, appearing to read 'R. Cunningham', written over a horizontal line.

Date: 19/03/2018

Roseanna Cunningham, Cabinet Secretary for Environment, Climate Change, and Land Reform.

Scottish Government Contact point:

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Annex A - Summary of ecosystem services benefits arising from designation of MPA and implementation of MCO

Services	Relevance	Baseline Level	Estimated impacts of designation and management	Value Weighting	Scale of Benefits	Confidence
Fish for human consumption	High - Support food web and contain nursery habitats.	Stocks not at MSY ¹ , flame shell beds need to recover to improve service	Moderate - Protection of shellfish beds can contribute to maintenance and recovery of stocks – benefits are higher under stronger protection measures but ecosystem response is uncertain.	High - Commercial species supported.	Moderate	Moderate
		Stocks reduced from potential maximum	Moderate – As above			
Fish for non-human consumption						
Gas and climate regulation	Moderate - Maerl is an important blue carbon store	Low- Moderate for flame shell beds Moderate - High from maerl beds	Moderate - flame shell beds High - maerl beds	Moderate - Carbon storage continues	Moderate	High
Natural hazard protection	Nil - Low	Nil - Low	Low	Minimal- Increase unlikely	Nil - Minimal	High
Regulation of pollution	Moderate - Species regulate pollution	Low - Major water quality issues to be dealt with through WFD ²	Low - If protection allows recovery of habitats, service could increase	Minimal- Increase in this service unlikely	Minimal - Low	High
Non-use value of natural environment	Moderate – High Contribution of the site to MPA network	Low- Moderate Non-use value of the site may decline	Moderate - Protection of features of site from decline, and enabling recovery	High - strong contribution to halting decline of biodiversity.	Moderate	Moderate
Recreation	Moderate - active individuals and businesses	Moderate - High Including tourism activities.	High – Angling benefits and biodiversity encountered by divers and recreational boaters are protected from possible decline, and could recover. Designation could enhance tourism activity.	Moderate - Extensive activities	Minimal- Enhanced visitor experience	Low – Moderate
Research and Education	Low - Moderate	Low- Moderate	High Protection of key characteristics of site from decline, improving future research opportunities for recovery of flame shell beds	High - opportunity to study recovery	High	High – recovery to be monitored

¹ Maximum Sustainable Yield

² Water Framework Directive